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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,429	06/18/2001	David Chazan	01-052410US	9951

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EXAMINER	
GORDON, BRIAN R	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,429	CHAZAN ET AL.	
	Examiner	Art Unit	
	Brian R. Gordon	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,28-31,33-77 and 79-81* is/are pending in the application.

4a) Of the above claim(s) *46-77* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,28-31,33-77 and 79-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 9, 2006 has been entered.

Response to Arguments

2. Applicant's arguments filed February 9, 2006 have been fully considered but they are not persuasive.

Although the venting elements described in the specification are microchannels, applicant denies admitting venting elements are equivalent to a cavity or channel. Applicant has provided a definition from Webster's Online Dictionary of the term "vent". As stated a vent is "an opening for the escape of a gas or liquid or for the relief of pressure." The elements of applicant invention are referenced as "venting elements" not vents as such it is unclear if applicant is attempting to assert the venting elements are vents as define. In view of such, the venting elements are simple openings. It appears as applicant is attempting to assert the intended use or function of the device further limits the structure. Any opening may be considered as a vent. The fact is an opening only functions as a vent when provided in an environment where air is needed to escape. As such, the proper classification of calling an element a vent is based on its

environmental location or it's particular use. However structurally, regardless of such it structurally remains an opening. The examiner asserts that as long as any opening is not obstructed it is capable of functioning as a vent. In the instant case the elements which applicant refers to as venting elements only function as vents **if** bonding voids are formed during manufacturing process of the device. There is no guarantee bonding voids will be formed, so how can one say the elements will vent any voids. The use of the "venting elements" as asserted is circumstantial. If no voids are formed the "the venting elements" are merely openings. Applicant is appearing to rely on how one intends to manufacture the device and the function the venting elements are intended to have in the manufacturing process as a means for distinguishing the final product from the prior art. This is not a sufficient basis for distinguishing an apparatus from that of the prior art.

Applicant has amended the claim by reciting a body structure formed by bonding together add least a first and second substrate. Such an amendment appears to be somewhat directed to the method of manufacture. The method by which a device is formed is does not add patentable weight to an apparatus claim. The examiner interprets the phrase to mean the body structure is comprised of at least a first and second substrates bonded together.

Applicant has further amended the claims to incorporate a negative limitation citing "the venting element having no fluid communication with functionalized regions of the fabrication element". The examiner has reviewed the cited passages which applicant asserts supports such a limitation. The examiner has failed to locate support

for the limitation within those passages. The passages recite positive limitations to characteristics of the device. There is no mention as what elements do not do. Furthermore the term "functionalized regions" does not appear in any of the passages. As such the negative limitation is considered new matter.

In reference to the 102 rejection under Sethi et al. and Dubrow et al., applicant asserts both Sethi et al. al. and Dubrow et al do not teach a venting element having no fluid communication with functional regions of the fabrication element. The term "functionalized regions" has not been defined by applicant in the specification nor claims. What is a functionalized region? Every element in a device has an intended function. Since the phrase has not been given a specified definition, the examiner asserts a "functionalized region" can be any area, region, or element of a device which chooses to reference as such. The "venting elements" themselves may be considered "functionalized regions" for they have an intended function. In view of such the as to Sethi et al. one can see the individual channels 1 are located in an area/region and are not in fluid communication with other areas/regions or other channels.

As to Dubrow et al. the apertures 106 are in fluid communication with microfluidic channels which are functionalized regions as defined by applicants page 17, line 6. The entire sentence states.

However, as described herein, when bond voids do form, the presence of venting elements (e.g., venting channels, venting cavities, or the like) inhibits them from spreading into

functionalized regions (e.g., regions having microchannels, etc.) of the devices.

Is applicant attempting to state that the passage within the parenthesis is the definition of functionalized regions? If so, functionalized regions are simply those including microchannels. However applicant's venting elements are described as possibly being microchannels so therefore the venting elements too may be considered as functionalized regions. What are the boundaries/dimensions which define a region?

It is unclear what falls within and out of the scope of applicant's of the definition of functionalized region.

Dubrow discloses" "In the embodiment shown, the upper layer 102 of the body structure 100, includes a plurality of ports 106 disposed through it. These ports are positioned to communicate with specific points of the **channels or grooves** 114, e.g., the termini, in the aggregate body structure when the upper and lower layers are mated." (beginning at column 4, line 67)

It is not required the port/venting element be in communication with channels. The port can be in communication with a groove. A groove is not defined as a functionalized region by applicant within the cited passage reference by applicant.

For reasons given herein the prior rejections are hereby maintained.

Claim Interpretation

As specified in applicant's specification defines a venting element is a cavity, channel or any other equivalent. As such any cavity or channel open to the

environment and associated with another element may be considered a venting element and would inherently function as insulator and be capable of producing a stagnant vapor region due to its exposure to air (water vapor). In view such the rejection below has been formed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 13, 28-31, 33-45, and 79-81 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. See explanation above directed to the new added negative limitation.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 13, 29, and 81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims include the term "functionalized regions" the term has not been defined in the specification nor claims. As such it is unclear what elements of the device applicant considers as "functionalized regions". If applicant is attempting

reference specified elements of the device is suggested applicant specify those elements as described.

The examiner asserts a functionalized region can be any region, element, area of a device which one desires to reference as such.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Sethi et al. US 4,891,120.

Sethi et al. disclose a chromatographic separation device comprises a body 2 of a semiconductor material which body has a longitudinal channel 1 (venting element) formed in a surface thereof, the channel 1 being capable of containing a predetermined volume of a liquid or solid material for a chromatography test or separation procedure, the channel carrying at least one electrode 6 positioned intermediate the channel ends. The claim does not require or specify the venting element as being associated with any particular structure to be vented.

As seen in the figures the channel is etched partially through the body. As recited above the open channel may possibly contain air (water vapor) when liquid does not fill the channel thereby forming a stagnant vapor region.

9. Claims 13, 28-31, and 79-80 are rejected under 35 U.S.C. 102(e) as being anticipated by Dubrow et al. US 6,756,019.

Dubrow et al. disclose microfluidic devices that comprise a body structure comprising at least a first microscale channel network disposed therein. The body structure has a plurality of ports disposed in the body structure, where each port is in fluid communication with one or more channels in the first channel network. The devices also include a cover layer comprising a plurality of apertures disposed through the cover layer. The cover layer is mated with the body structure whereby each of the apertures is aligned with a separate one of the plurality of ports.

As to claim 13, the apertures 106 may be considered venting elements which are capable of having air (water vapor) therein. The cavities are of the same format/structure as those disclosed by applicant as such the cavities are inherently capable of providing insulation and reduction of coupling as claimed.

As to claim 29, the microscale channel network is equivalent to applicants microchannel network and the plurality of apertures are equivalent to applicant's plurality of venting cavities.

As to the particular depth of the cavities, Dubrow further states the terms "microscale," "microfabricated" or "microfluidic" generally refer to one or more fluid passages, chambers or conduits which have at least one internal cross-sectional

dimension, e.g., depth, width, length, diameter, etc., that is less than 500 μm, and typically between about 0.1 μm and about 500 μm In the devices of the present invention, the microscale channels or chambers preferably have at least one cross-sectional dimension between about 0.1 μm and 200 μm, more preferably between about 0.1 μm and 100 μm, and often between about 0.1 μm and 20 μm.

Claims 30-31 are directed to the venting cavities, however the cavities are not positively claimed as elements of the invention. The cavities are optional (claim 29) not required hence any limitation directed thereto is optional.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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